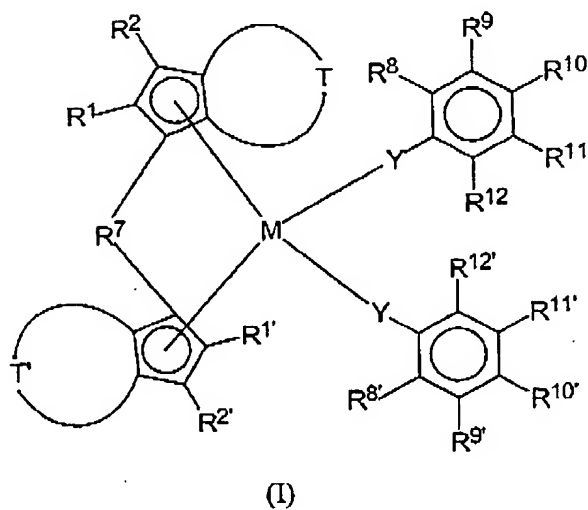


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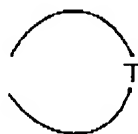
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1-15. (Canceled).

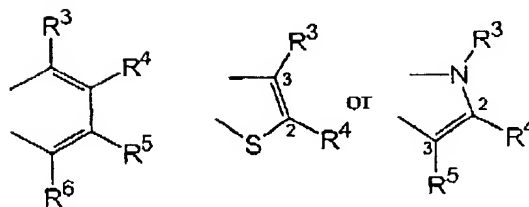
16. (Previously presented) A process for preparing racemic metallocene complexes of the formula (I)



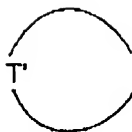
where



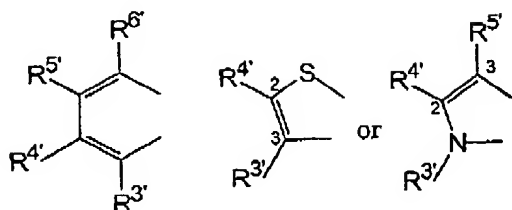
is a divalent group



and



is a divalent group



and the substituents and indices have the following meanings:

M is titanium, zirconium, hafnium, vanadium, niobium, tantalum, chromium, molybdenum or tungsten,

$R^1, R^2, R^3, R^4, R^5, R^6, R^9, R^{10}, R^{11}, R^{1'}, R^{2'}, R^{3'}, R^{4'}, R^{5'}, R^{6'}, R^{9'}, R^{10'}$ and $R^{11'}$ are identical or different and are each hydrogen, halogen, C_1 - C_{20} -alkyl, 3- to 8-membered cycloalkyl which optionally bears a C_1 - C_{10} -alkyl group as substituent, C_6 - C_{15} -aryl, alkylaryl having from 1 to 10 carbon atoms in the alkyl part and from 6 to 20 carbon atoms in the aryl part, arylalkyl having from 1 to 10 carbon atoms in the alkyl part and from 6 to 20 carbon atoms in the aryl part,

R^{13} $-OR^{13}, -SR^{13}, -N(R^{13})_2, -P(R^{13})_2$, or $Si(R^{13})_3$, where are identical or different and are each C_1 - C_{10} -alkyl, C_6 - C_{15} -aryl, C_3 - C_{10} -cycloalkyl, alkylaryl, where the radicals mentioned may be partially or fully substituted by heteroatoms,

R^8, R^{12}, R^8 and $R^{12'}$ are identical or different and are each C_1 - C_{10} -alkyl,

Y is oxygen

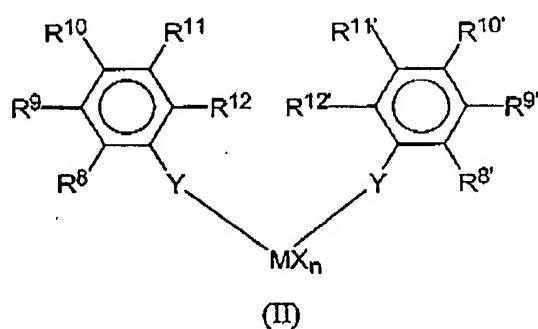
R^7 is a $-[Z(R^{15})(R^{16})]_m-$ group, where

Z are identical or different and are each silicon, germanium, tin or carbon,

R^{15} and R^{16} are each hydrogen, C_1 - C_{10} -alkyl, C_3 - C_{10} -cycloalkyl or C_6 - C_{15} -aryl,

m is 1, 2, 3 or 4,

which comprises reacting a transition metal complex of the formula (II)

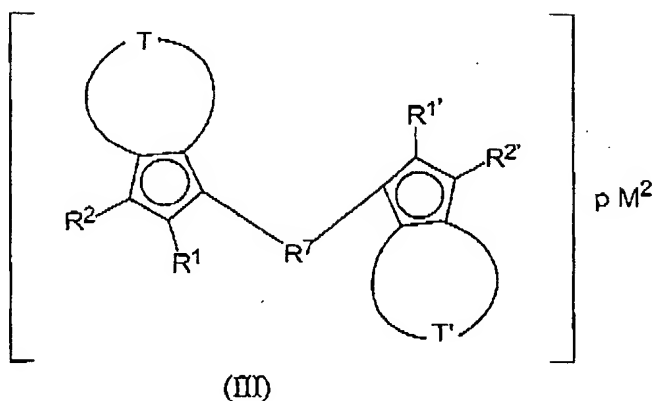


where

X are identical or different and are each hydrogen, halogen, C_1 - C_{10} -alkyl, C_6 - C_{15} -aryl, alkylaryl having from 1 to 10 carbon atoms in the alkyl part and from 6 to 20 carbon atoms in the aryl part, $-OR^{17}$ or $-NR^{17}_2$, where R^{17} are identical or different and are each C_1 - C_{10} -alkyl, C_6 - C_{15} -aryl, C_3 - C_{10} -cycloalkyl, alkylaryl,

n is an integer from 1 to 4 and corresponds to the valence of M minus 2,

with cyclopentadienyl derivatives of the formula (III)



where

M^2 is an alkali metal ion or alkaline earth metal ion,

and

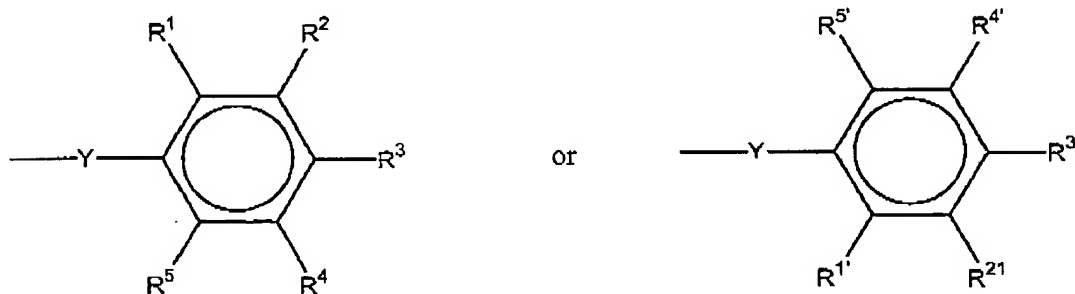
p is 1 when M^2 is an alkaline earth metal ion and is 2 when M^2 is an alkali metal ion,

and heating the resulting reaction mixture to a temperature in the range from -78 to $+250^\circ\text{C}$.

17. (Previously presented) The process as claimed in Claim 16, wherein the substituents R^8 , R^8 , R^{12} and R^{12} are identical and are selected from the group consisting of methyl, ethyl, n-propyl, i-propyl, n-butyl, sec-butyl and tert-butyl.
18. (Previously presented) The process as claimed in Claim 16, wherein the substituents R^1 and R^1 are identical or different and are each hydrogen or methyl.
19. (Previously presented) The process as claimed in Claim 18, wherein the substituents R^8 , R^8 , R^{12} and R^{12} are identical and are methyl.
20. (Previously presented) The process as claimed in Claim 16, wherein M is titanium, zirconium or hafnium.
21. (Previously presented) The process as claimed in Claim 20,

wherein M is zirconium.

22. (Previously presented) The process as claimed in Claim 16, wherein M^2 is magnesium or lithium.
23. (Previously presented) The process as claimed in Claim 16, wherein R^7 is a dimethylsilyl group or an ethanediyl group.
24. (Previously presented) The process as claimed in Claim 16, wherein in a further step, the compound of the formula (I) is reacted with suitable replacement reagents to replace at least one of the groups



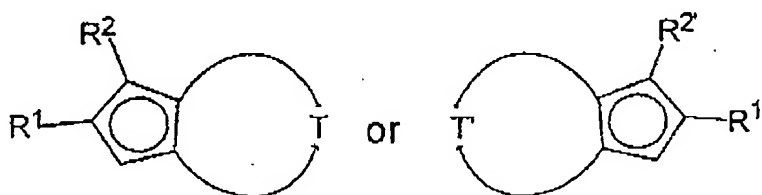
by halogen substituents F, Cl, Br or I or by linear, branched or cyclic C_{1-10} -alkyl substituents.

25. (Previously presented) The process as claimed in Claim 24, wherein the replacement reagents are selected from the group consisting of aliphatic and aromatic carboxylic acid halides, organoaluminum compounds and combinations thereof.
26. (Previously presented) The process as claimed in Claim 24, wherein the replacement reagents are selected from the group consisting of acetyl chloride, phenylacetyl chloride, 2-thiophenacetyl chloride, trichloroacetyl chloride, trimethylacetyl chloride, O-acetylmandetyl chloride, 1,3,5-benzenetricarboxylic chloride, 2,6-pyridinecarboxylic chloride, tert-butylacetyl chloride, chloroacetyl chloride, 4-chlorobenzacetyl chloride, dichloroacetyl chloride, 3-methoxyphenylacetyl chloride, acetyl bromide, bromoacetyl bromide, acetyl fluoride, benzoyl fluoride, $SOCl_2$, silicon tetrachloride, trimethylaluminum, triethylaluminum, tri-n-butylaluminum, triisobutylaluminum, and dialkylaluminum

chlorides, aluminum sesquichlorides, methylaluminum dichloride, dimethylaluminum chloride, aluminum trichloride, ethylaluminum dichloride and combinations thereof.

27. (Currently Amended) The process as claimed in Claim 25, wherein replacement reagents used are HF, HBr, HI, or HCl, or as ~~solutions~~ solutions in water, diethyl ether, DME or THF.
28. (Currently Amended) The process as claimed in ~~Claims 16~~ Claim 16, wherein no intermediates are isolated during the process.
29. (Previously presented) The process as claimed in Claim 16 comprising the following steps:

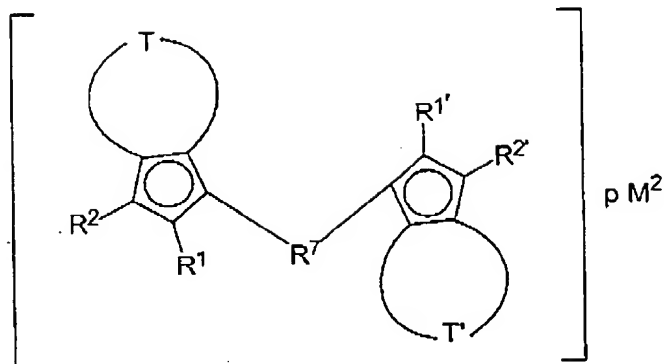
a) deprotonating a compound of the formula (IV)



(IV)

by means of a deprotonating agent;

b) reacting the deprotonated compound (IV) with a compound R⁷Hal₂, where Hal is a halogen substituent F, Cl, Br or I, and subsequent repeat deprotonation by means of a suitable deprotonating agent to give the compound of the formula (III)



(III)

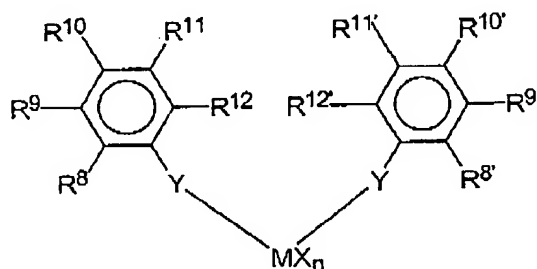
where

M^2 is an alkali metal ion or alkaline earth metal ion,

where

p is 1 when M^2 is an alkaline earth metal ion and is 2 when M^2 is an alkali metal ion, and R^7 is in claim 16;

c) reacting the compound of the formula (III) with a transition metal complex of the formula (II)



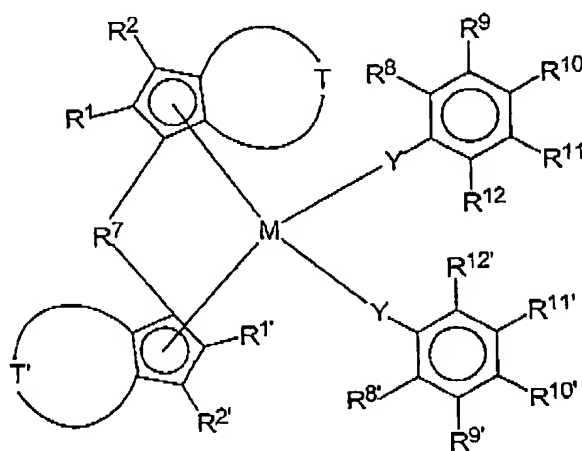
(II)

where

X are identical or different and are each hydrogen, halogen, C_1 - C_{10} -alkyl, C_6 - C_{15} -aryl, alkylaryl having from 1 to 10 carbon atoms in the alkyl part and from 6 to 20 carbon atoms in the aryl part, $-OR^{17}$ or $-NR^{17}_2$, where R^{17} are identical or different and are each C_1 - C_{10} -alkyl, C_6 - C_{15} -aryl, C_3 - C_{10} -cycloalkyl, alkylaryl,

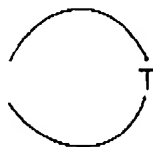
n is an integer from 1 to 4 and corresponds to the valence of M minus 2, and the other substituents in claim 16.

30. (Previously presented) The process as claimed in Claim 29, wherein the deprotonating agent is n-butyllithium, tert-butyllithium, sodium hydride, potassium tert-butoxide, or Grignard reagents of magnesium, magnesium compounds.
31. (Previously presented) The process as claimed in Claim 29, wherein the deprotonating agent is an alkaline earth metal alkyl or alkali metal alkyl compound.
32. (Currently Amended) A racemic metallocene complex of the formula (I)

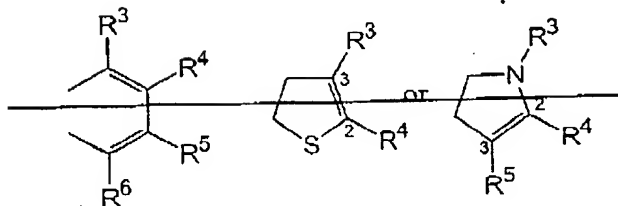


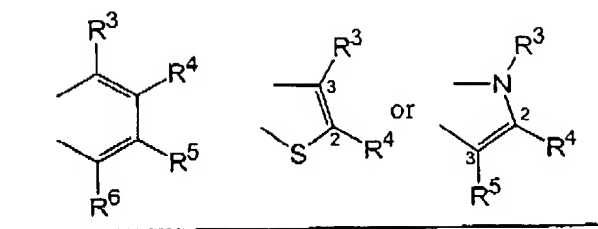
(I)

where

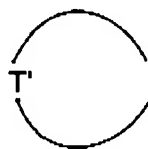


is a divalent group

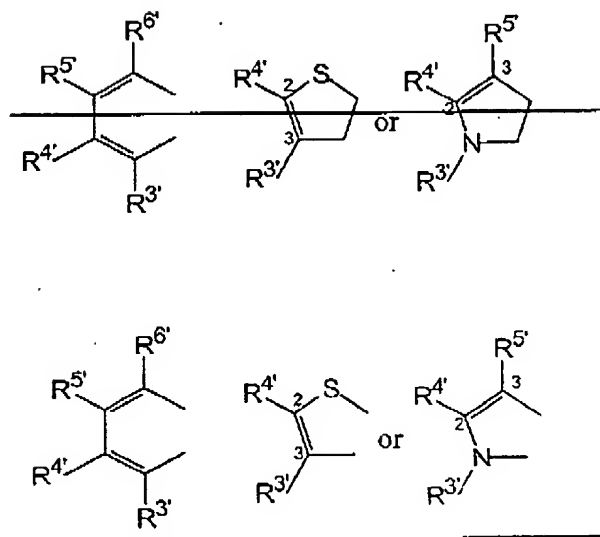




and



is a divalent group



and the substituents and indices have the following meanings:

M is titanium, zirconium hafnium, vanadium, niobium, tantalum, chromium, molybdenum or tungsten,

$R^1, R^2, R^3, R^4, R^5, R^6, R^9, R^{10}, R^{11}, R^{1'}, R^{2'}, R^{3'}, R^{4'}, R^5, R^6, R^9, R^{10'}$ and $R^{11'}$ are identical or different and are each hydrogen, halogen, C_1 - C_{20} -alkyl, 3- to 8-membered cycloalkyl which optionally bears a C_1 - C_{10} -alkyl group as substituent, C_6 - C_{15} -aryl, alkylaryl having from 1 to 10 carbon atoms in the alkyl part and from 6 to 20 carbon atoms in the aryl part, arylalkyl having from 1 to 10 carbon atoms in the alkyl part and from 6 to 20 carbon atoms in the aryl part, $-OR^{13}$, $-SR^{13}$, $-N(R^{13})_2$, $-P(R^{13})_2$ or $Si(R^{13})_3$, where

R^{13} are identical or different and are each C_1 - C_{10} -alkyl, C_6 - C_{15} -aryl, C_3 - C_{10} -cycloalkyl, alkylaryl, where the radicals mentioned may be partially or fully substituted by heteroatoms,

R^8, R^{12}, R^8 and $R^{12'}$ are identical or different and are each C_1 - C_{10} -alkyl,

Y are oxygen

R^7 is a $-[Z(R^{15})(R^{16})]_m-$ group, where

Z are identical or different and are each silicon, germanium, tin or carbon,

R^{15} and R^{16} are each hydrogen, C_1 - C_{10} -alkyl, C_3 - C_{10} -cycloalkyl or C_6 - C_{15} -aryl,
and

m is 1, 2, 3 or 4.

33. (Previously presented) The complex as claimed in claim 32 selected from the group consisting of dimethylsilylbis(1-indenyl)zirconium bis(2,4,6-trimethylphenoxide), dimethylsilylbis(2-methyl-1-indenyl)zirconium bis(2,4,6-trimethylphenoxide), dimethylsilylbis(2-methyl-1-indenyl)zirconium bis(2,6-dimethylphenoxide), dimethylsilylbis(2-methyl-1-indenyl)zirconium bis(2,6-dimethyl-4-bromophenoxide) and ethanediylbis(1-indenyl)zirconium bis(2,4,6-trimethylphenoxide).
34. (Previously presented) The complex as claimed in Claim 32, wherein the substituents R^8, R^8, R^{12} and $R^{12'}$ are identical and are selected from the group consisting of methyl, ethyl, n-propyl, i-propyl, n-butyl, sec-butyl and tert-butyl.

35. (Previously presented) The complex as claimed in Claim 32, wherein the substituents R^1 and $R^{1'}$ are identical or different and are each hydrogen or methyl.
36. (Previously presented) The complex as claimed in Claim 35, wherein the substituents R^8 , $R^{8'}$, R^{12} and $R^{12'}$ are identical and are methyl.
37. (Previously presented) The complex as claimed in Claim 32, wherein M is titanium, zirconium or hafnium.
38. (Previously presented) The complex as claimed in Claim 37, wherein M is zirconium.
39. (Currently Amended) The complex as claimed in ~~Claim 32~~ Claim 16, wherein M^2 is magnesium or lithium.
40. (Previously presented) The complex as claimed in Claim 32, wherein R^7 is a dimethylsilyl group or an ethanediyl group.
41. (Previously presented) A catalyst comprising the racemic metallocene complex of claim 32.
42. (Previously presented) A process for polymerizing olefinically unsaturated compounds which comprises using the catalyst as claimed in claim 41.
43. (Previously presented) A process for stereoselective synthesis which comprises using the catalyst as claimed in claim 41.